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ANALYSIS

Russia's Wheat Exports: Recent Structural Changes and Implications

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Abstract

Following the invasion of Ukraine, Russia not only continued its growth in wheat exports, but also experienced increased market concentration. As large multinational exporters exited the grain export market, only a few exceptions remained. This increased concentration reduced competition in the domestic market, which can lower producers' prices and profitability. Against the backdrop of these structural changes, Russia's grain exports to countries of geopolitical importance like China and Saudi Arabia are rising. This article provides an overview of these structural changes and assesses their potential implications for the domestic market and global food security.

Introduction

Since Russia's invasion of Ukraine in February 2022, Russia has remained the largest wheat exporter in the world. In the 2023/24 season, its exports rose to 55.5 million tons, increasing its share of global wheat exports to 25%. However, for the marketing season of 2024/25, Russia's exports are forecasted to decrease to 48 million tons, reducing its share to 22.5%. Meanwhile, Ukraine's wheat production and exports have declined due to Russia's military activities. It is expected that in the marketing year of 2024/25, Ukraine's wheat production and exports will drop by about one quarter compared to prewar levels (see Figure 1 on p. 6).

Russia's growing importance in global wheat markets was evident even before Russia's invasion of Ukraine. However, significant changes in Russia's grain sector have taken place, particularly since the war began. This article explores the comprehensive restructuring of Russia's grain export sector, which culminated in the exit of international grain trade companies from both the grain export business and the country itself. First, the authors shed light on the economic implications of Russia's wheat export restrictions, including export bans, export taxes, and export quotas, which have transitioned from temporary measures into permanent policies. Second, this analysis argues that grain producers have been more adversely affected than grain export companies, while the Russian government has substantially increased its tax income. Third, the authors highlight the increasing influence of geopolitics on grain export destinations. As grain exports to China may increase via the New Land Grain Corridor, which is being established from the Ural, Siberia, and the Far East regions, this analysis provides insights into the development of Russia's grain exports to China. Finally, this analysis concludes by discussing the potential impact of Russia's wheat exports on global food security and the overall functioning of the export system.

Restructuring of Russia's Grain Export Sector

Over the past 16 years, Russia's wheat exports have risen by approximately 9% annually. As exports have increased, so too has the concentration of large exporters. In the 2022/23 marketing year, total wheat exports surged by 77% compared to the previous year. This growth has been accompanied by a disproportionately strong rise in exports by the top 10 companies, which rose by 82%, compared to a 64% increase in exports by the remaining companies (see Figure 2 on p. 6). In 2008/09, the 10 largest exporters accounted for 59% of exports by volume; this share rose to 73% in 2021/22 and 75% in 2022/23. In the first half of the 2023/24 marketing year, the four largest export companies accounted for 56% of total exports.

The number of exporting firms decreased from 354 in 2008/09 to 243 companies following Russia's yearlong wheat export ban in 2010/11. Since 2013/14, however, the engagement of firms in the export business has increased (see Figure 3 on p. 6), peaking at 469 companies in 2017/18, which saw an abundant wheat harvest in Russia. After the 2017/18 season, the number of exporters declined to 230 wheat exporting firms by 2021/22 (see Figure 3), due largely to the war. Nevertheless, the 2022/23 marketing season saw an increase over the previous year, with 28 additional exporting companies entering the market (see Figure 3).

During the first half of the 2023/24 marketing year (July to December), Russian wheat exports totaled 23.4 million tons, a 28% increase compared to the same period in the previous marketing year. During this time, 265 export companies were involved in exporting wheat.

In the first half of the 2023/24 marketing year, the top 50 exporters accounted for 90% of Russia's total wheat exports. Of these 50 exporters, only the Swiss-based companies Aston and Sierentz Global Merchants were of foreign origin; the rest were Russian. Aston main-

tained a leading position among the top three exporters of Russian wheat, exporting 2.3 million tons during this period. In contrast, Sierentz Global Merchants liquidated its Russian subsidiary on May 17, 2024 (Interfax 2024a). The dynamic nature of the Russian wheat export market is further emphasized by the entry of seven new companies into the top 50 exporters. Notably, Agro Commodities, a newcomer to the wheat export business, ranked 7th, with a total of 0.5 million tons of wheat exports to 10 destination countries in the first half of the 2023/24 marketing year (July to December).

While the top exporters remained unchanged during the 2020/21 and 2021/22 marketing years, three companies—Demetra Trading, Grain Service, and APK AST Company M—dropped out of the top 10 in 2022/23 (see Figure 4 on p. 7). Demetra Trading, which operated under the name Mirogroup Resources from 2016 to 2021, is part of Demetra Holding, 45% of which was owned by the state-owned VTB Bank until July 2023, when VTB sold its stake due to Western sanctions (Interfax, 2023).

The structure of the export market changed significantly by the end of the 2022/23 marketing year as multinational companies left the Russian grain export market. Louis Dreyfus, a large multinational agricultural company that had been active in the Russian wheat export business since 2016, withdrew from the export business in May 2023. During the same period, other large multinational exporters, including Cargill and Viterra, also left the Russian export market.

Rodnie Polya (formerly RIF), which had been the market leader for all marketing years since entering the market in 2016, exported 4.6 million tons of wheat to 24 destination countries in the first half of the 2023/24 marketing year. However, the company dropped to second place in the rankings during this period.

The new leader in the export market for the first half of the 2023/24 marketing year, Grain Gates, made its first transaction (to Egypt) on August 12, 2022. In the 2022/23 marketing year, this newly established company exported a total of 6.7 million tons[1] of wheat to 28 countries around the world. Grain Gates surpassed RIF during the 2023/24 season by exporting 14 million tons of wheat, according to data from ProZerno analysts (Bloomberg 2024).

MZK Export (International Grain Company) is also among the four largest exporters in the 2023/24 marketing year. MZK began trading grain in Russia in 2004 as a subsidiary of Glencore. In 2017, the Russian unit was renamed Glencore Agriculture MZK. It operated as Viterra Rus from 2021 and became MZK Export in May 2023, following Viterra's withdrawal from the subsidiary. In the first half of the current marketing year, the now Russian-owned MZK Export exported 0.9 million tons of wheat, a 44% decrease compared to the same period in the previous marketing year (2022/23).

Burden of the Wheat Export Tax on Russian Wheat Producers

Over the past two decades, Russia has frequently imposed export restrictions on wheat to protect its domestic market. These measures have included an export tax in 2007/08 and 2015, an export ban in 2010/11, and a seasonal export quota since 2020. On February 15, 2021, the Russian government imposed a wheat export tax intended to stabilize domestic wheat prices; the tax remains in place today (see Figure 5 on p. 8).

Russia's wheat export tax system has undergone several changes since its introduction in 2021 to account for fluctuations in wheat export prices and the Ruble/USD exchange rate, particularly following the onset of Russia's war in Ukraine in February 2022. Initially, a flat export tax was imposed on February 15, 2021. This was replaced by a floating-rate tax on June 1, 2021, set at 70% of the export price above 200 USD/t. On February 15, 2022, two additional thresholds—375 and 400 USD/t —were introduced, with corresponding tax rates of 80% and 90%, respectively.

Following Russia's invasion of Ukraine, the export tax increased sharply as global wheat prices surged, peaking at 146 USD/t in early July 2022 (see Figure 5). In addition to the high export tax, Russia's wheat export flows were adversely affected by war-related logistical challenges, such as the temporary closure of the Azov seaport, and a significantly strengthened Ruble (Götz and Svanidze, 2023). To mitigate stagnating exports further pressured by a record-high wheat harvest in the 2022/23 marketing year, the Russian government revised the tax calculation method on short notice by removing the progressive component, changing the baseline price to 15,000 Rubles/t, and requiring tax payments in Rubles. As a result, the export duty was immediately halved to 75 USD/t, which, coupled with the weakening Ruble, improved the pace of Russian wheat exports. As agricultural input costs rose substantially from the beginning of the war, the government further reduced the wheat export tax by decreasing the taxable base through adjustments in the baseline price. At the beginning of the current marketing year, the wheat export tax dropped to its lowest value of 17 USD/t by the end of July 2024.

Since its implementation in February 2021, the wheat export tax has reduced domestic wheat prices and decreased price transmission from export to the domestic

1 Data do not cover exports to EAEU countries and Iran.

markets by 35 to 60%, with the most significant effects observed in the North Caucasus, a major wheat production and export region (Svanidze et al. 2024). The tax also imposed a burden on Russian wheat producers, who paid approximately 20% of their wheat export revenues to the Russian government on average, while wheat exporters have maintained their trade margins. Moreover, Russian producers also incurred revenue losses due to the export price discounts offered to wheat importers to remain competitive in the global market and to offset the costs associated with higher trade risks and logistical challenges resulting from Russia's war in Ukraine. As highlighted by the president of the Russian Grain Union,[2] the export price discounts have resulted in the loss of approximately 1.4 billion USD in export revenues since the beginning of the war, amounting to nearly 6% of Russia's total wheat export sales (Interfax 2024b, p. 30). In contrast, the Russian government has collected substantial revenue from the export tax. This amounted to 4.7 billion USD between February 2021 and October 2023, or approximately 20% of the total value of wheat exports (Svanidze et al. 2024).

Change in Export Destinations

In the 2018/19 marketing year, Russian wheat was exported to 98 destination countries. In the subsequent years, as exports increased, the number of destination countries gradually declined, dropping to 62 destination markets in the 2022/23 marketing year—a shift influenced by the ongoing war (see Figure 6 on p. 8).

Since Russia's invasion of Ukraine, there has been an observed increase in wheat exports to certain countries, which might be the result of geopolitical considerations (see Figure 7 on p. 9). For example, wheat exports to countries in North Africa with close political ties to Russia, such as Algeria, Libya, and Tunisia, have risen (see Figure 7). However, there has not been an increase in wheat exports to Egypt, which has traditionally been a major destination for Russian wheat. Egypt is officially pursuing a trade diversification strategy to enhance the resilience of its wheat import system. In contrast, Turkey, another major destination for Russian wheat exports, has increased its imports since the war began. Turkey, an ally of Russia, also played a central role in negotiating the Black Sea Grain Initiative. Other countries that have increased wheat imports from Russia are Saudi Arabia, Brazil, China, and Turkmenistan. Russia exports both wheat and—to an even greater extent—barley to China, with railway transport playing a crucial role in supporting the growth of these exports (see Figure 8 on p. 10).

Conclusions

Even after Russia's invasion of Ukraine, Russia's wheat exports have continued to grow, further expanding Russia's leading position in the global wheat trade. However, this development has been accompanied by several changes in Russia's wheat export sector.

First, the rise of Russia's wheat exports has been accompanied by a significant increase in market concentration. Today, the top 10 export companies account for 70% of Russia's total wheat exports. Second, international trading companies have withdrawn from the export market, while Russian companies have gained market share. In the 2022/23 marketing year, RIF, a leading export company, saw a decline in its prominence in the Russian grain export market, while the newly established, government-affiliated Grain Gates gained market share (Fastmarkets 2024).

Third, these shifts are related to Russia's wheat export tax system, which has become increasingly flexible over time to accommodate rapidly changing wheat-market dynamics and macroeconomic conditions. As a result of the latest changes in the export tax policy in July 2024, the current tax rates are among the lowest since the introduction of the tax in 2021. Although the export tax reduces the profits of wheat producers in Russia, the government is considering keeping it permanently, albeit easing it from time to time to avoid the collapse of the grain sector.

Fourth, it appears that geopolitical factors are increasingly influencing export trade patterns. Most recently, the number of destinations for Russia's wheat exports has decreased, while exports to certain countries—including the BRICS+ countries of Brazil, China, and Saudi Arabia—have increased.

Increased concentration in the wheat export business and reduced competition among grain buyers in the Russian domestic market may lead to lower producer prices regionally, disadvantaging grain producers in some regions (Agrarheute 2024). This, combined with the financial burden of the flexible wheat export tax on farmers' profitability and the current war-related macroeconomic conditions, could undermine the efficiency of grain production and potentially halt Russia's growth in wheat production and exports.

However, it remains to be seen whether the Russian government will take control of the former foreign subsidiaries of Cargill, Louis Dreyfus, and Viterra or whether these assets will be transferred to new private owners, as observed in other sectors (Yakovlev 2024). It is highly questionable whether increased government control over the grain sector would expand opportun-

2 This information was presented by Arkady Zlochevsky, head of the Russian Grain Union, at the Interregional Agricultural Conference in Chelyabinsk, Russia (MAK-2024).

ities for the implementation of agricultural policies in the wheat export market, such as establishing a minimum export price, as attempted in the 2023/24 marketing year, or setting up a BRICS Grain Exchange.

In any case, a resilient global trading system characterized by balanced trade diversification and self-sufficiency with improved storage facilities is essential for mitigating the various risks that could negatively impact food security in import-dependent countries and globally.

About the authors

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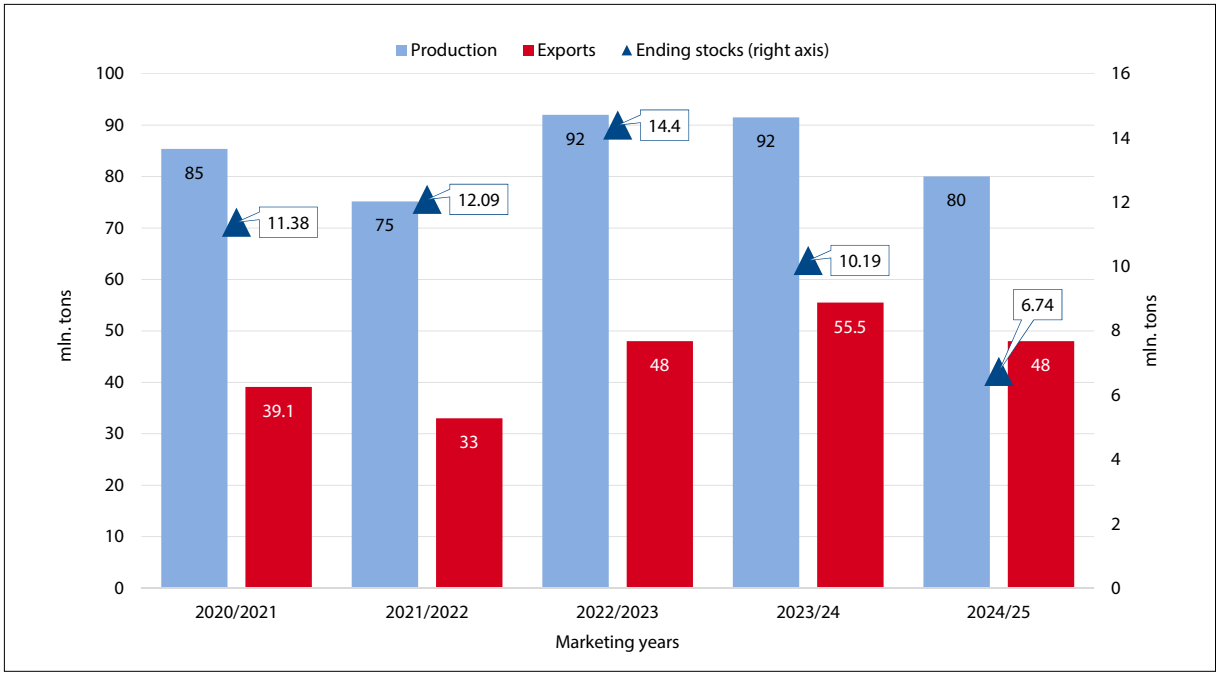
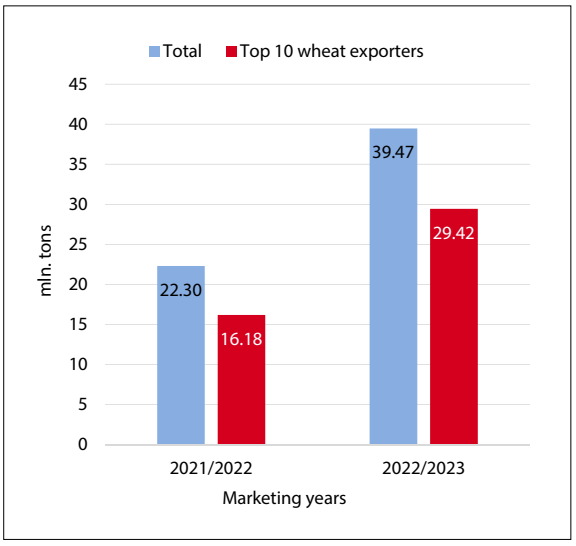
Figure 1: Development of Russia's Wheat Production, Export and Ending Stocks, in Million Tons



Source: WASDE report, various issues.

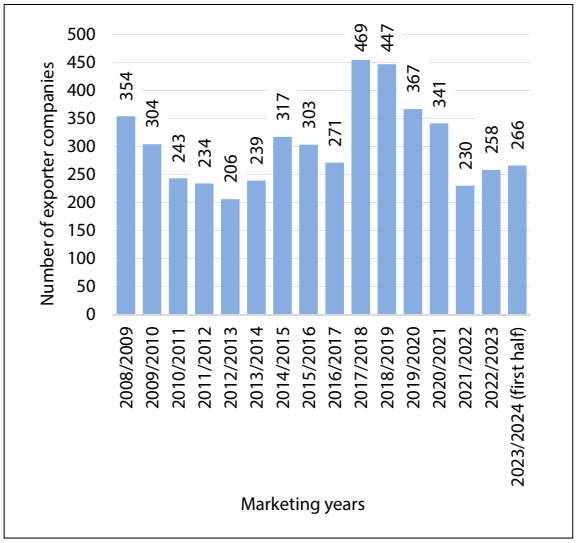
Figure 2: Wheat Exports from Russia



Note: Data do not include Russian wheat exports to Iran and EAEU countries.

Source: Various sources.

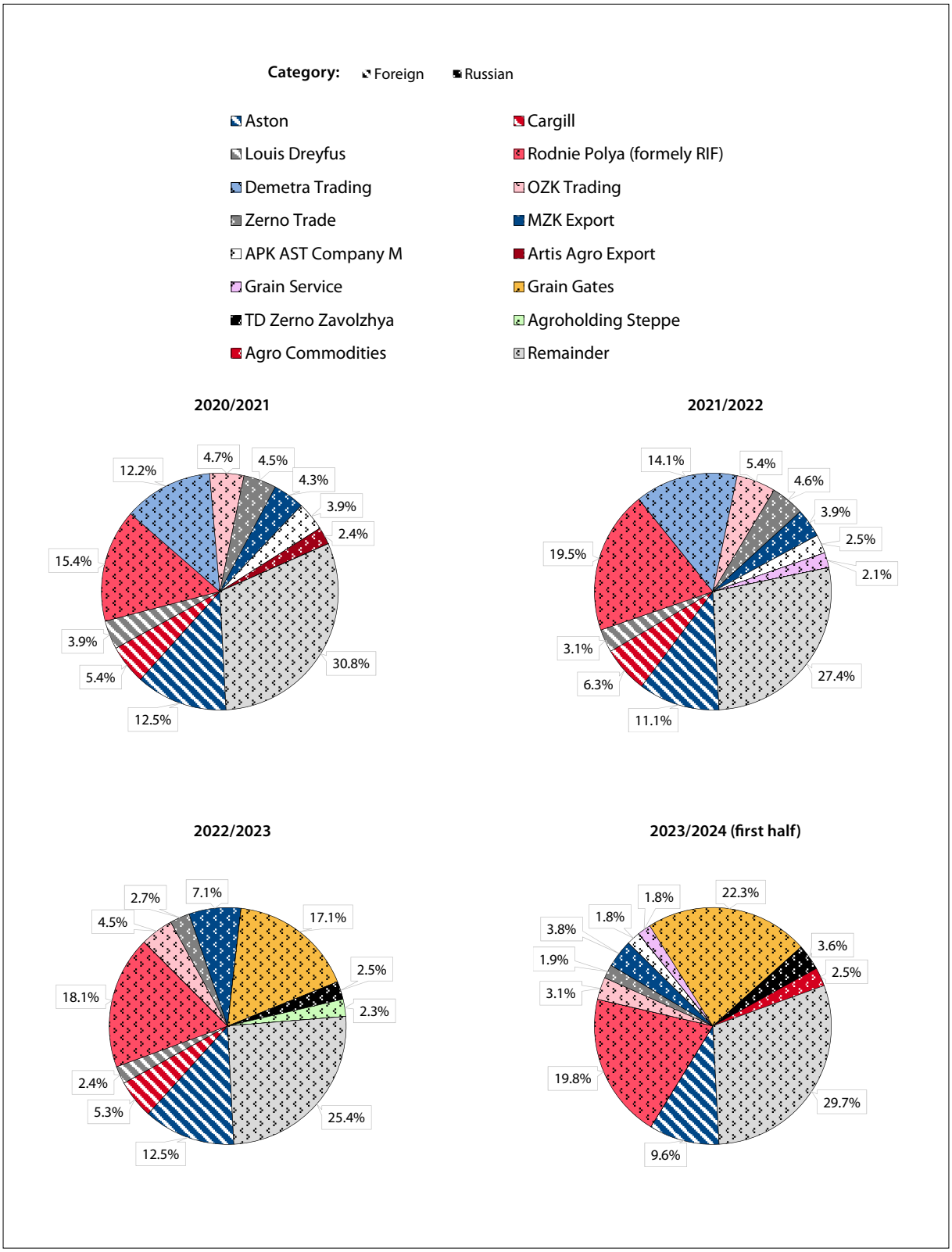
Figure 3: Number of Export Companies by Marketing Years



Note: Data do not include Iran (2020–2023), Belarus, Kazakhstan (2011–2023), Kyrgyzstan (2015–2023), and Armenia (2016–2023).

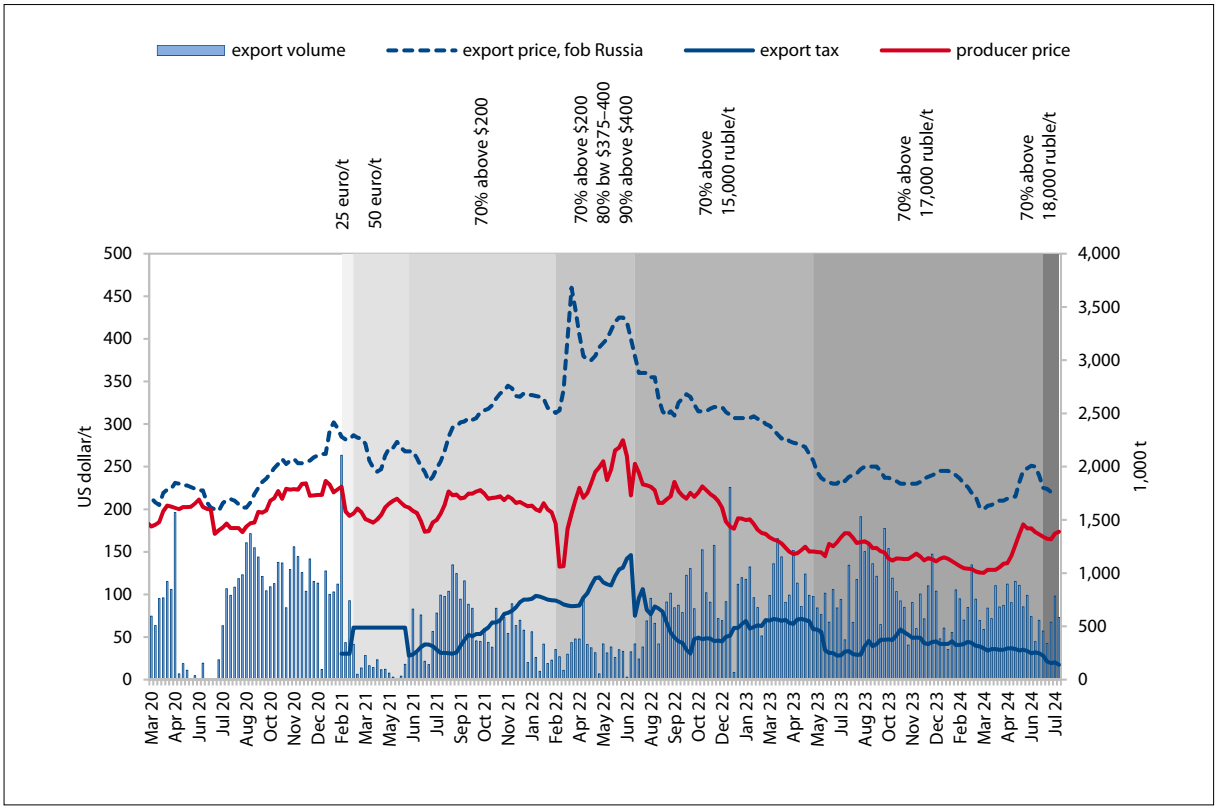
Source: Various sources.

Figure 4: Top 10 Export Companies and Their Market Shares by Marketing Years



Source: Various sources.

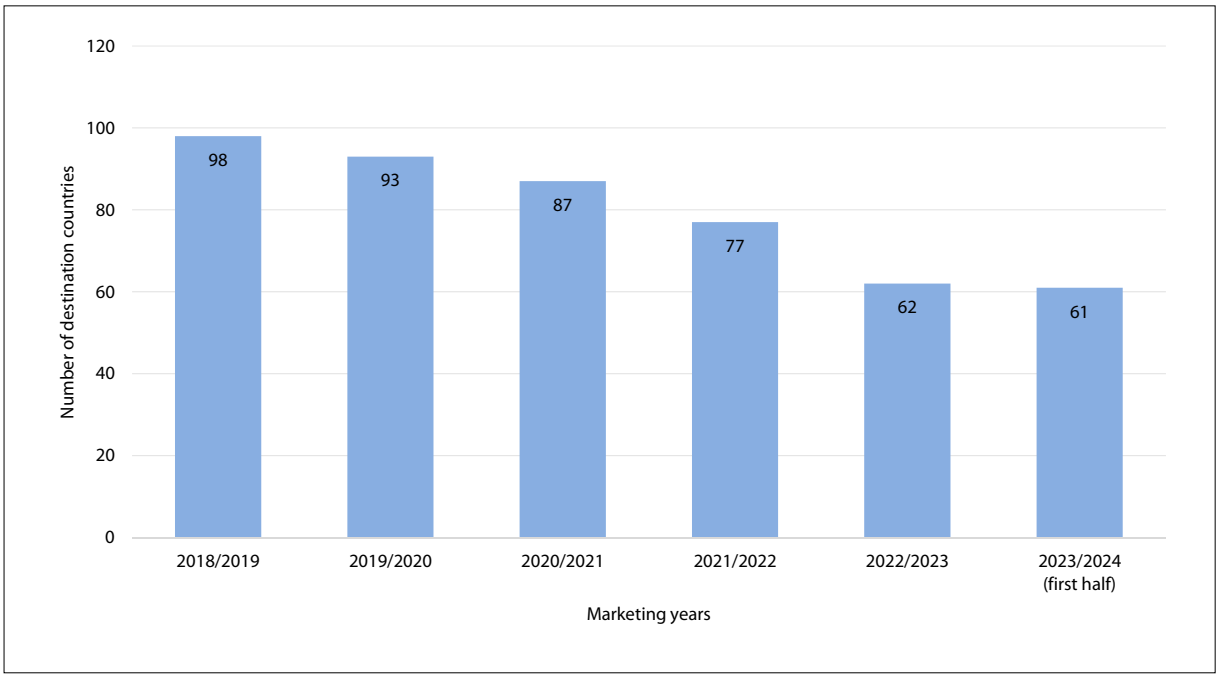
Figure 5: Export Tax, Wheat Prices, and Exports of Russian Wheat



Note: Shaded areas correspond to the amendments to the export tax regulations.

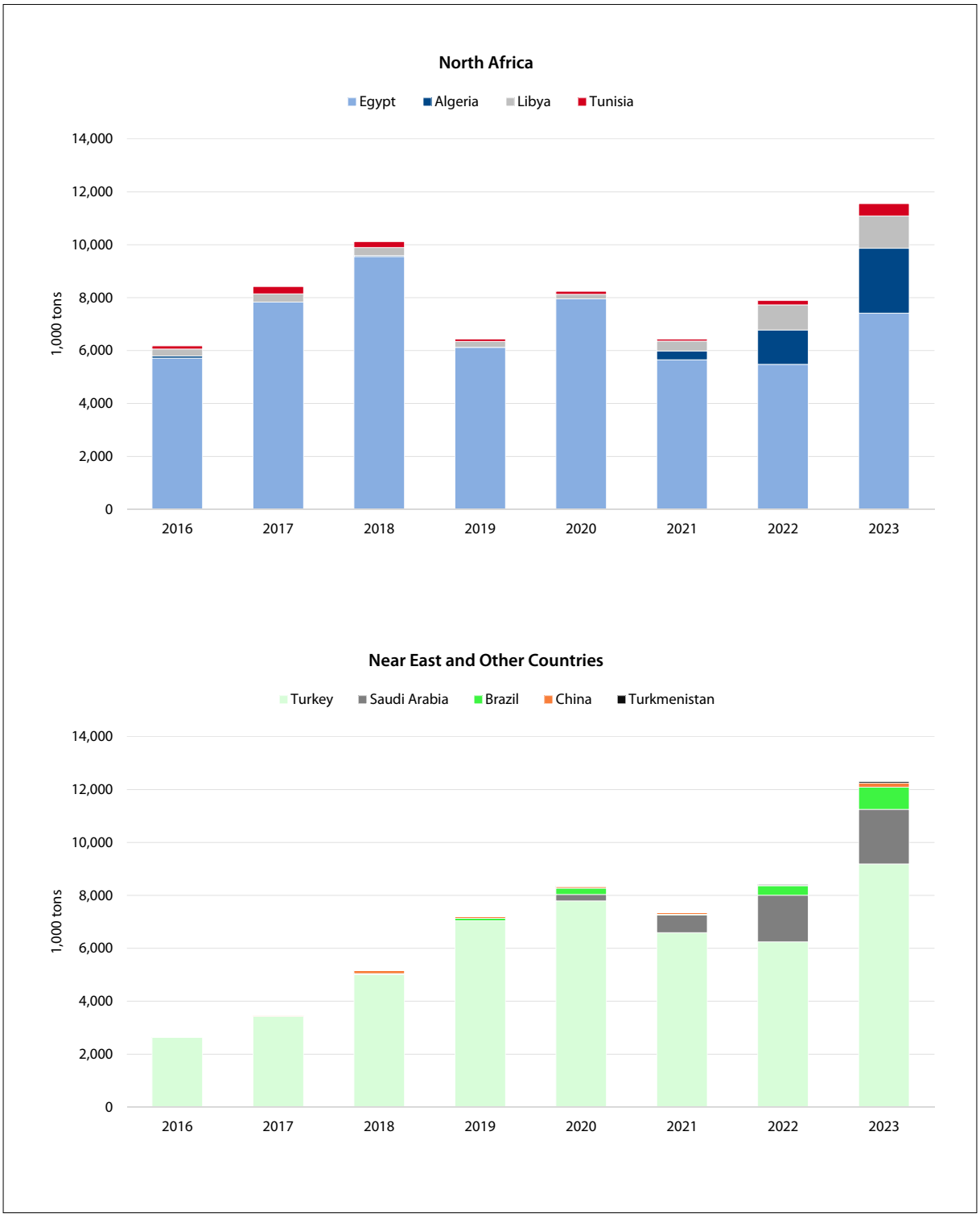
Sources: APK Inform/Refinitiv-Eikon/Global Trade Alert.

Figure 6: Number of Destination Countries by Marketing Years



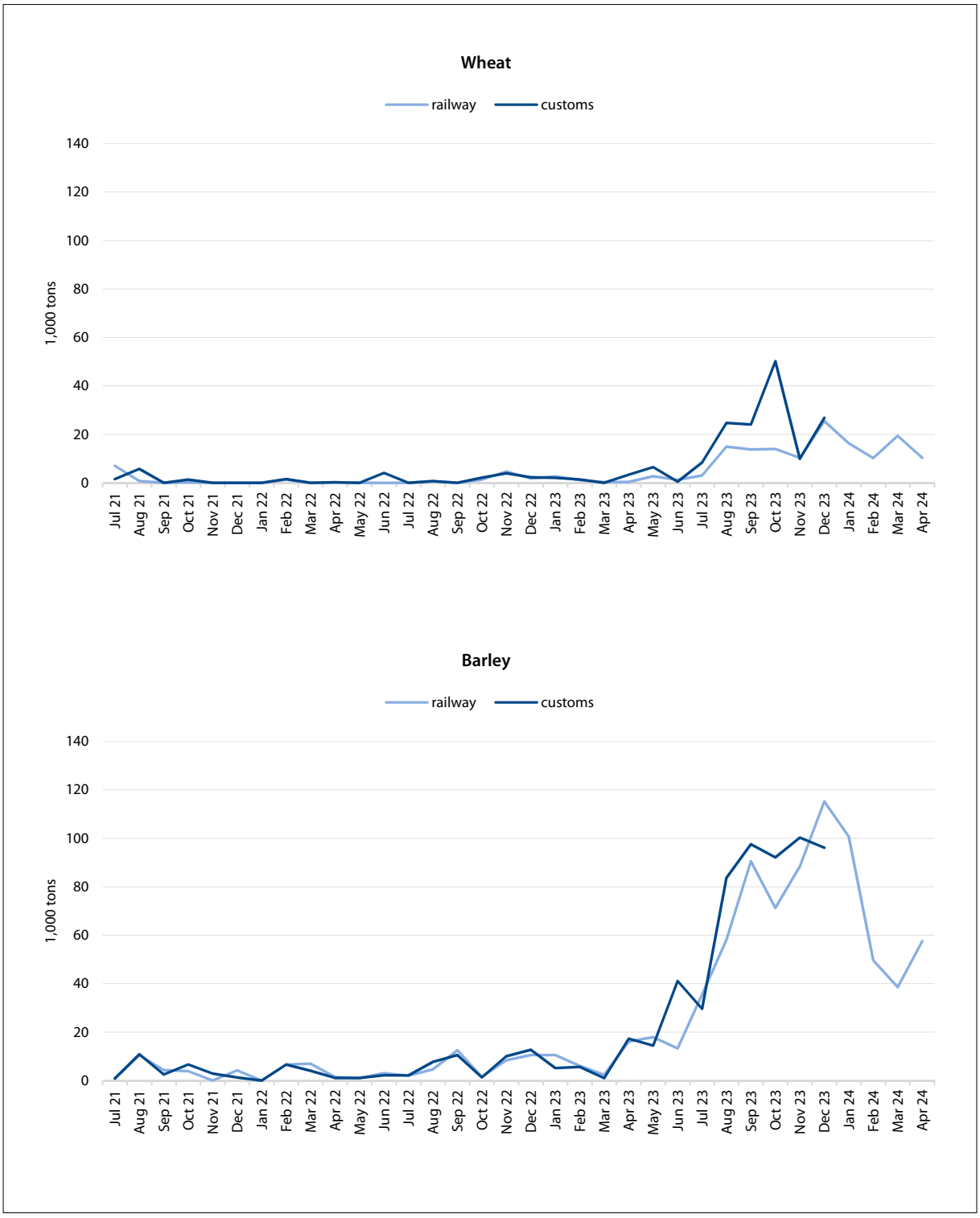
Note: Data do not include Iran (2020–2023), Belarus, Kazakhstan (2011–2023), Kyrgyzstan (2015–2023), and Armenia (2016–2023).

Figure 7: Development of Russia's Wheat Exports to Selected Destinations



Source: APK Inform/Refinitiv-Eikon/Global Trade Alert.

Figure 8: Development of Russia's Wheat and Barley Exports to China



Source: Refinitiv-Eikon.

ANALYSIS

Concentration of Russian Wheat Exports to Egypt and Turkey: Evidence from the Ports of Novorossiysk and Rostov

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Abstract

Russia's war of aggression against Ukraine has led to a significant tightening of export restrictions for wheat in the Black Sea region, which has impaired competition on international markets. As a result, market concentration on the Egyptian and Turkish wheat markets has increased. Disaggregated data on Russian wheat exports from the ports of Novorossiysk and Rostov are used to analyze trade concentration, market structure, fluctuations in export prices and volumes, and export restrictions. The aim is to draw conclusions about competition among Russian wheat exporters and to find evidence of oligopolistic structures. It is emphasized that Novorossiysk, as the largest port, plays a decisive role in wheat exports compared to other ports on the Black Sea and the Sea of Azov. The concentration of Russian wheat exports in Novorossiysk could lead to distortions of competition on both Russia's international and domestic markets.

Since the Russian Federation has become a major wheat exporter in the world market, numerous empirical studies have analyzed imperfect competition in international wheat markets (e.g., Uhl et al. 2016, 2019; Pall et al. 2013, 2014; Gafarova et al. 2015, 2023) and the market integration of regional and international markets for wheat (e.g., Heigermoser et al. 2021; Yugay et al. 2024). The works of Pall et al. (2014) and Gafarova et al. (2023) provide detailed overviews of RDE studies categorized by export and destination countries, products, time periods, data, models, and methods. The estimation results of most studies indicate that oligopolistic market power exists on international markets.

Over the past two decades, the governments of Kazakhstan, Russia, and Ukraine have introduced various trade and export restrictions on wheat exports, including export bans, export licenses, quotas, taxes, tariffs, and agreements regulating grain export volumes. Gafarova et al. (2023) found that the export restrictions imposed by the Kazakh, Russian, and Ukrainian governments had a positive and statistically significant impact on the behavior of Russian exporters and even strengthened the oligopolistic market power of exporters in the South Caucasian countries.

Against this background, it can be assumed that Russian wheat exporters could benefit from these export restrictions and that Russia's ongoing war could further expand their market power on the international wheat market. The export restrictions imposed by the Kazakh, Russian, and Ukrainian governments and the Russian attack are expected to have a negative impact on the competitive behavior of Russian wheat exporters on the Egyptian and Turkish wheat markets and could lead to the exercise of market power. In addition, disaggregated data from Russian ports could provide further empirical insights into both the market concentration of one of the world's largest wheat-exporting countries in the Black Sea region and the competition between Russian exporters exporting wheat from Novorossiysk, Rostov, and other ports. Port-based results can significantly improve our understanding of both the impact of export restrictions and the competitive situation on international wheat markets, thus supporting strategies to achieve the Sustainable Development Goals (SDGs) and improve global food security. A high level of concentration on international markets could impair competition and thus the functioning of the markets and even lead to the exercise of market power. This could jeopardize the achievement of two of the UN's 17 SDGs, namely Goal 2 "Zero Hunger" and Goal 12 "Sustainable Consumption and Production." The results of this study highlight the need for research, which may be of great interest not only to scientists, but also to business, governments, and international organizations.

Concentration of Russian Wheat Exports

Figure 1 on p. 15 shows the development of Russian wheat exports over the last two decades and illustrates Russia's rise to become an important player on the international wheat market. That being said, Russian exports show a remarkably high degree of concentration in relation to the destination countries Egypt and Turkey.

The export volume rose from around 2 million tonnes in 2001 to almost 44 million tonnes in 2018, with exports going to over 120 countries worldwide. Remarkably, two key markets accounted for more than a third of Russian wheat exports: Egypt, which received an average of 22% (approximately 4.3 million tonnes annually), and Turkey, which accounted for 12% (approximately 2.8 million tonnes annually). The remaining two-thirds

of wheat exports were distributed to other countries worldwide (rest of the world, RoW).

Egyptian Wheat Market

Figure 2 on p. 16 shows the development of wheat exports from important export countries—such as France, Russia, Ukraine, and the US—to the Egyptian wheat market, illustrating the structure of the market and the distribution of market share.

Over the past two decades, the Egyptian wheat market has experienced significant growth, with imports increasing from around 1.3 million tonnes in 2001 to 13.3 million tonnes in 2020. This significant increase is indicative of Egypt's growing demand for wheat, driven primarily by the growth of the population from 73 million people in 2001 to nearly 109 million people in 2021 (FAOSTAT 2024). Despite an increase in domestic wheat production from 6.3 million tonnes to 9.7 million tonnes, domestic production is not sufficient to meet rising demand. The import dependency ratio (IDR) for wheat in Egypt from 2001 to 2022 illustrates the country's increasing dependence on wheat imports, with the ratio rising from 17% in 2001 to over 60% in the late 2010s. The IDR peaked at around 60% in 2019 and remained above 59% until 2020, underlining the country's high dependence on imports.

Since 2005, Russia has become the leading exporter of wheat to Egypt, increasing its exports from around 30,000 tonnes (2% of market share) in 2001 to almost 10 million tonnes (76% of market share) in 2018, demonstrating significant growth in market dominance. Russia now exports more than 4 million tonnes of wheat to Egypt every year, achieving an average market share of 42%. Ukraine has become a major competitor to Russia over the past decade, exporting an average of 1.4 million tonnes of wheat to Egypt every year, which corresponds to a market share of 13%. France and the US, meanwhile, have suffered a significant decline in their market shares over the past two decades. Between 2001 and 2022, France exported an average of 990,000 tonnes annually and thus held a market share of 13%, while the US exported an average of 1.2 million tonnes annually and thus also held a market share of 13% (FAOSTAT 2024). Wheat exports from the rest of the world to Egypt average 1.5 million tonnes per year, representing a market share of 17% and increasing the diversity of wheat-exporting countries supplying Egypt.

In terms of market structure, the Egyptian wheat market has become increasingly concentrated, with Russia dominating the export landscape. Since 2015, Russia has maintained its dominant position, with a market share of over 50%. The declining shares of France and the US, combined with the steady presence of Ukraine and the rest of the world (RoW), highlight a dynamic and evolving market structure. This shift emphasizes the growing influence of Russia and the reduced competitive presence of other major exporters.

Turkish Wheat Market

Figure 3 on p. 16 shows the development of wheat exports from important export countries such as Kazakhstan, Russia, Ukraine, and the US to the Turkish wheat market and illustrates a significant change in the market structure and the concentration of Russian exports over the last two decades. The Turkish wheat market has grown more strongly than the Egyptian market. Wheat imports increased from around 368,000 tonnes in 2001 to 10.7 million tonnes in 2020. As in Egypt, the increase in demand is due to growth in the country's population, which rose from 65 million people in 2001 to almost 85 million people in 2021 (FAOSTAT 2024). Domestic wheat production in Turkey remains constant at an average of 20 million tonnes, fluctuating between 17.2 and 22.6 million tonnes from year to year (FAOSTAT 2024).

Over a 22-year period, the IDR has generally increased, indicating growing dependence on imports relative to domestic consumption. In the early 2000s, dependence on imports was relatively low, but this dependence peaked in the late 2010s and early 2020s. The highest IDR was observed in 2019, at almost 35%, with a slight decrease in the following years. The IDR for wheat in Turkey is significantly lower than that in Egypt.

Russia became the leading exporter of wheat to Turkey in 2007, two years after achieving that position in the Egyptian market. Russia's wheat exports to Turkey increased from around 81,000 tonnes (14% of market share) in 2005 to almost 1.1 million tonnes (52% of market share) in 2007. This upward trend continued, reaching 7.9 million tonnes—or 74 % of the Turkish wheat market—in 2020. Over the past two decades, Russia has exported an average of 3 million tonnes of wheat to Turkey every year, securing an average market share of 55%. Russia therefore has a more dominant position on the Turkish wheat market than on the Egyptian market.

Russian Seaports of Novorossiysk and Rostov

The seaport of Novorossiysk (NSP) on the Black Sea coast is one of Russia's largest grain export hubs. Several grain terminals are in operation in Novorossiysk, including JSC KSK, which exported 5.2 million tonnes in 2022 and 8.2 million tonnes in 2023 (KSK 2024), and the Novorossiysk Grain Terminal LLC, which exported 4.2 million tonnes in 2022 and 6.6 million tonnes in 2023 (NZT 2024). The Rostov seaport is located in Rostov-on-Don, about 50 kilometers from the coast of the Sea of Azov. This port is also home to several grain terminals, such as the Rostov Grain Terminal LLC, which

recorded an export volume of 4.2 million tonnes in 2022 and 6.6 million tonnes in 2023 (RGT 2024).

Figure 4 on p. 17 shows global wheat exports and the share of Russian seaports from January 2006 to December 2022, based on customs export statistics from 92 regional customs authorities in the Russian Federation (APK-Inform 2024).

During this period, the seaport of Novorossiysk developed into one of the largest ports in Russia and exported almost half of the country's total wheat exports on average. From January 2020 to December 2022, the port's share of total wheat exports increased significantly, averaging around 80% and sometimes exceeding 95%. Russia's second largest port, the seaport of Rostov, handles 16% of Russia's total wheat exports and is covered by the Rostov regional customs authority. The remaining 36% of wheat exports are accounted for by other ports, which are included in Russia's regional customs statistics.

Given the significant export shares of the seaports of Novorossiysk and Rostov and the substantial share of Russian wheat exports going to such major destinations as Egypt and Turkey, Figures 5 and 6 on pp. 17–18 show the monthly wheat exports to these countries and the shares managed by the Russian ports and customs authorities.

Port-Related Wheat Exports to Egypt and Turkey

A comparison of port-related wheat exports to Egypt and Turkey, illustrated in Figures 5 and 6 on pp. 17–18, shows both similarities and significant differences in wheat exports from Russia. Around 64% of Russian wheat exports to Egypt were handled via the seaport of Novorossiysk, but only 23% of exports to Turkey traveled along this route.

Meanwhile, around 50% of Russian wheat exports to Turkey were channeled through the seaport of Rostov, compared to just 13% of exports to Egypt. The remaining 23% of exports to Egypt and 28% of exports to Turkey were channeled through other ports included in Russia's regional customs statistics. An important commonality is that the Rostov seaport had lost its role in wheat exports to both destinations by January 2020, with the Novorossiysk seaport becoming the dominant port for exports to these two countries as well as to other countries (see Figure 4 on p. 17).

Port-Related Price and Volume Fluctuations for Wheat Exports

Figures 7 and 8 on pp. 18–19 illustrate significant price and volume fluctuations in port-related wheat exports to Egypt and Turkey, which were handled via the Russian port of Novorossiysk and other seaports, including the port of Rostov. The data for the other seaports is based on regional customs statistics (RoC), which show differences in export volumes and prices between the individual seaports. The price and volume fluctuations are caused by such factors as seasonal harvest and export conditions, which include seasonal influences on pricing and export dynamics.

These price and volume fluctuations in the Egyptian and Turkish wheat markets are also influenced by other factors. First, natural disasters and climate phenomena have an impact on wheat yields and therefore on production volumes. Second, political factors such as Russia's ongoing military attacks on port infrastructure, the occupation and destruction of agricultural land in Ukraine, and government trade and export restrictions are causing uncertainty among wheat producers and traders. These factors must be taken into account in further empirical analyses in order to gain valuable insights into seasonal trade patterns and the effects of export restrictions on the market behavior of wheat exports.

Wheat exports are heavily dependent on production volumes, which can fluctuate considerably due to weather conditions. For example, the high production yields in 2008/2009 contrast with the significantly lower yields during Russia's "Great Drought" in 2010. In addition, state intervention such as the levying of export taxes and duties by the Russian government also influences wheat exports. State market interventions are often justified as security measures to ensure supply and stability on domestic wheat markets.

Market interventions have occurred during various periods, including from November 12, 2007, to July 1, 2008; from February 1, 2015, to May 15, 2015; from July 1, 2015, to September 23, 2016; and from September 23, 2016 to February 15, 2021. In addition, the Russian government has twice imposed an export ban on wheat: from March 15, 2008, to April 30, 2008, and from August 15, 2010, to June 30, 2011. These state market interventions contribute to the observed instability in export patterns (see Gafarova et al. 2023; Uhl et al. 2019; GTA 2024).

A comparison of Figures 7 and 8 shows considerable differences in wheat exports to various destination countries and between the Russian seaports. Figure 7 shows that for the Egyptian markets, both the export volume and the price at the port of Novorossiysk are significantly higher than at other seaports, including Rostov. In contrast, Figure 8 shows that for the Turkish markets, the export volume in the port of Novorossiysk was, until December 2019, significantly lower than in other regional customs authorities. From January 2020, however, there was a significant increase in the export volume in Novorossiysk. In addition, the export price for wheat destined for Turkey was significantly higher in the port of Novorossiysk than in other regional customs authorities, including Rostov, especially until December 2019. In addition, Figures 7 and 8 illustrate significant seasonal fluctuations in wheat export volumes to Egypt and Tur-

key, as well as export prices in the port of Novorossiysk and other Russian ports included in customs statistics.

Conclusions

In addition to the seaport of Novorossiysk, there are five Russian seaports on the Black Sea: Anapa, Gelendzhik, Sochi, Taman, and Tuapse. The seaports on the Sea of Azov are Rostov, Yeisk, Taganrog, Temryuk, and Kavkaz. The most important Black Sea ports for wheat exports are Novorossiysk, Tuapse, and Taman, while Rostov, Taganrog, Azov, Yeisk, and Temryuk all historically played a role in wheat exports on the Sea of Azov. Analysis of disaggregated port-related wheat export data shows that the seaports on the Sea of Azov have been almost completely shut down since January 2020.

Novorossiysk, the largest seaport, differs significantly from the other Black Sea and Sea of Azov ports in terms of capacity. Consequently, a disaggregated analysis of wheat exports at the port level, especially taking into account the unique characteristics of Novorossiysk and other seaports, can provide valuable empirical results on pricing under imperfect competition in the international wheat market.

The results of the descriptive analysis of the market structure on the Egyptian and Turkish wheat markets indicate high market concentration, price and volume fluctuations, as well as price and volume differences between individual seaports. In view of the export restrictions imposed by the governments of Kazakhstan, Russia, and Ukraine, as well as Russia's war of aggression against Ukraine, model-based analyses of the market behavior of Russian wheat exporters using disaggregated, port-based export data can provide new empirical insights for the analysis of imperfect competition and the measurement of oligopolistic market power. These findings are particularly relevant for Russian exports to Egypt and Turkey.

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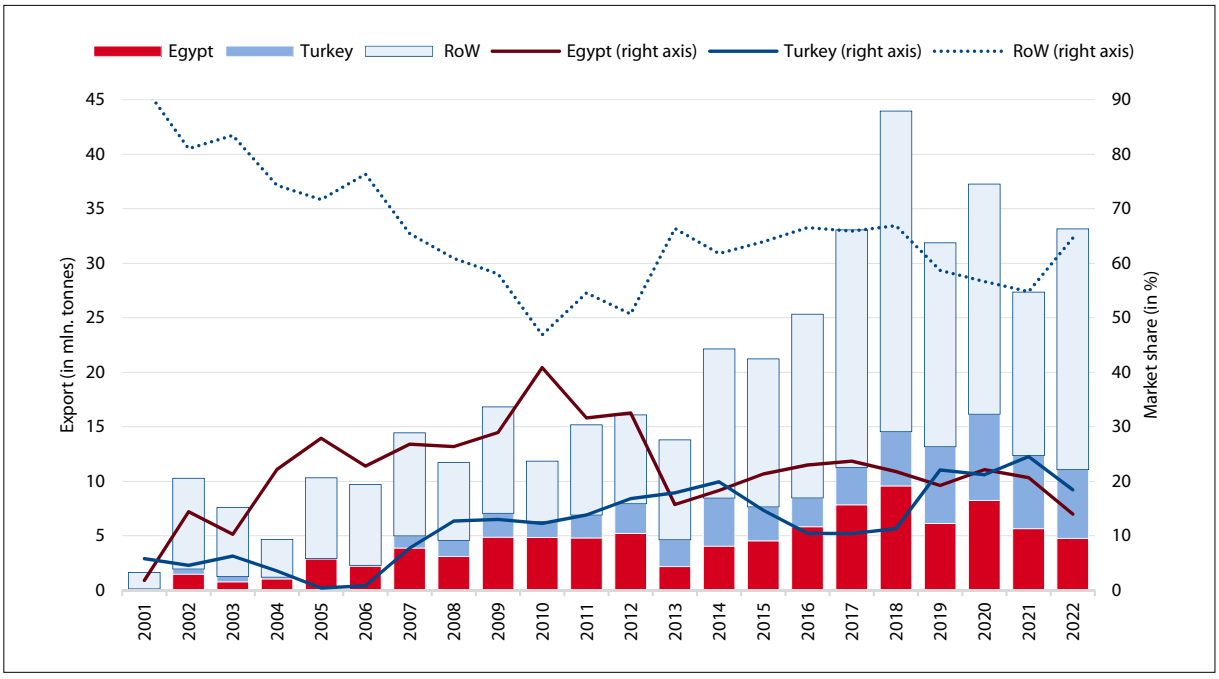
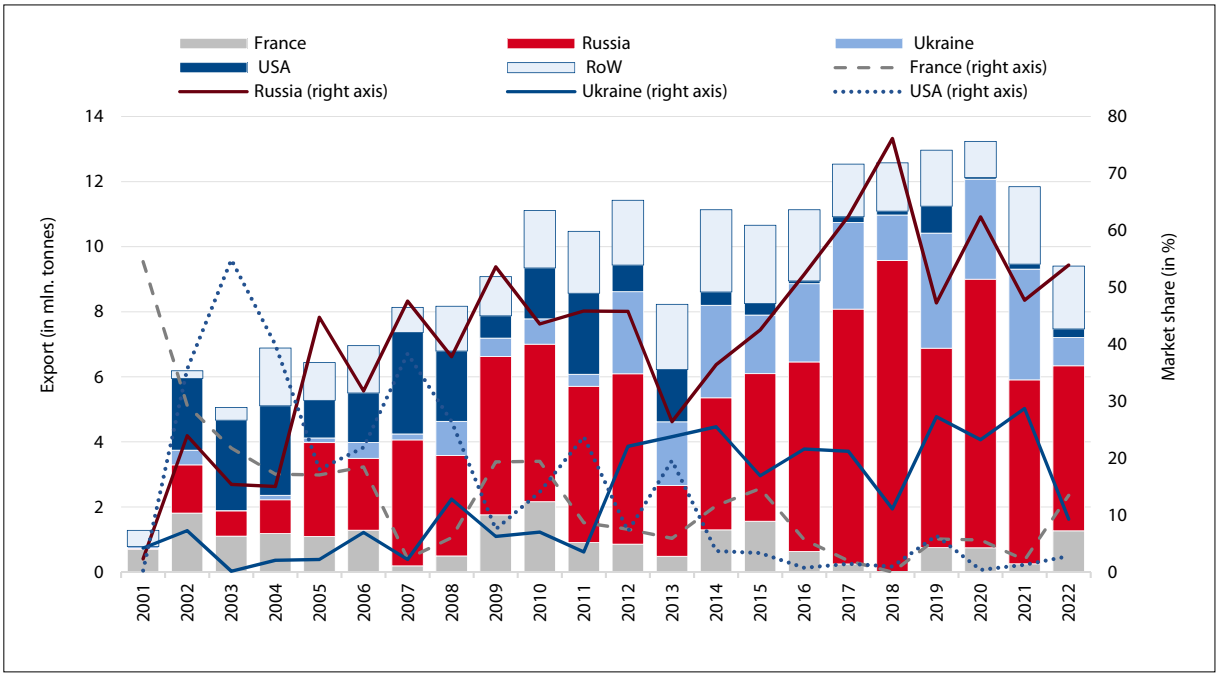
Figure 1: Concentration of Russian Wheat Exports



Notes: The bars represent wheat exports; the lines represent market shares. RoW stands for Rest of the World.

Source: Author's own calculations using data from UN Comtrade (2024) and the International Trade Centre (ITC, 2024).

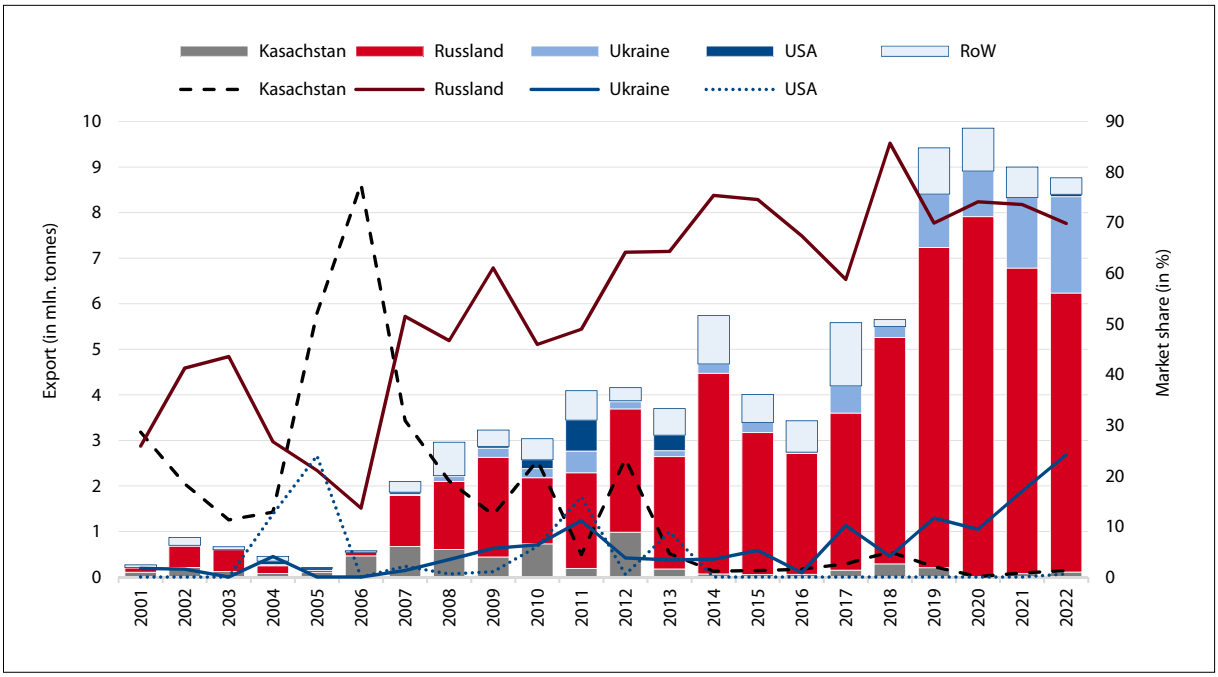
Figure 2: Structure of the Egyptian Wheat Market



Notes: The bars represent wheat exports; the lines represent market shares. RoW stands for Rest of the World.

Source: Author's own calculations using data from UN Comtrade (2024) and the International Trade Centre (ITC, 2024).

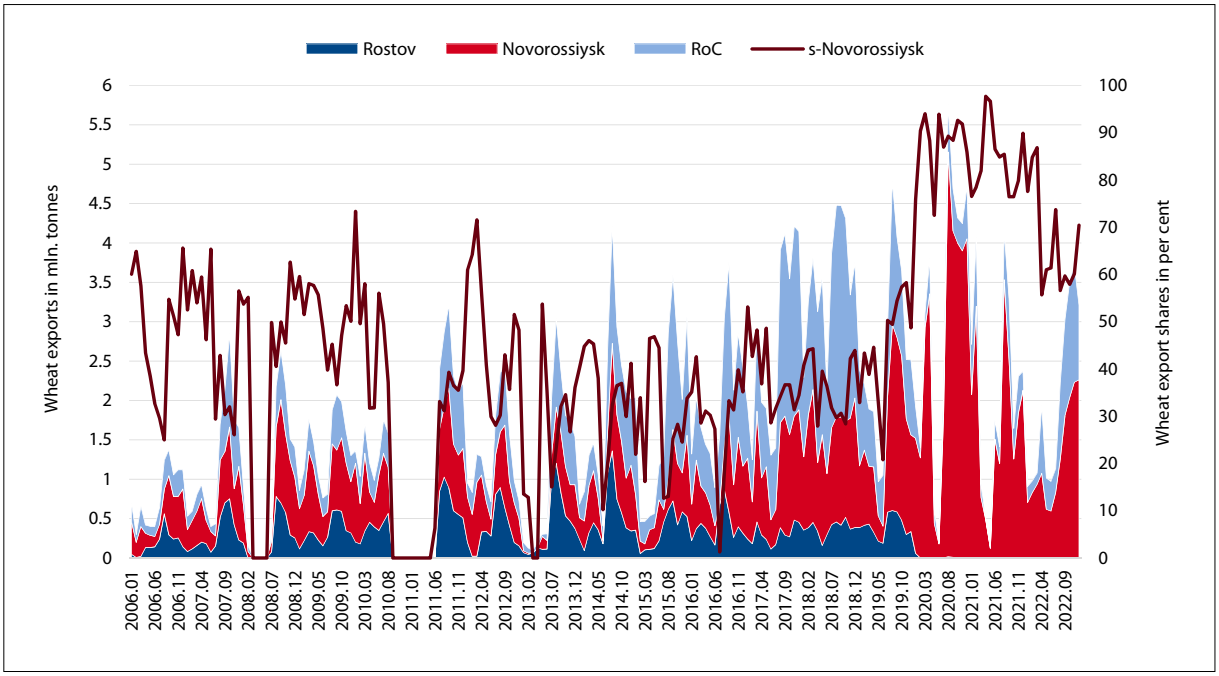
Figure 3: Structure of the Turkish Wheat Market



Notes: The bars represent wheat exports; the lines represent market shares. RoW stands for Rest of the World.

Source: Author's own calculations using data from UN Comtrade (2003) and the International Trade Centre (ITC, 2003).

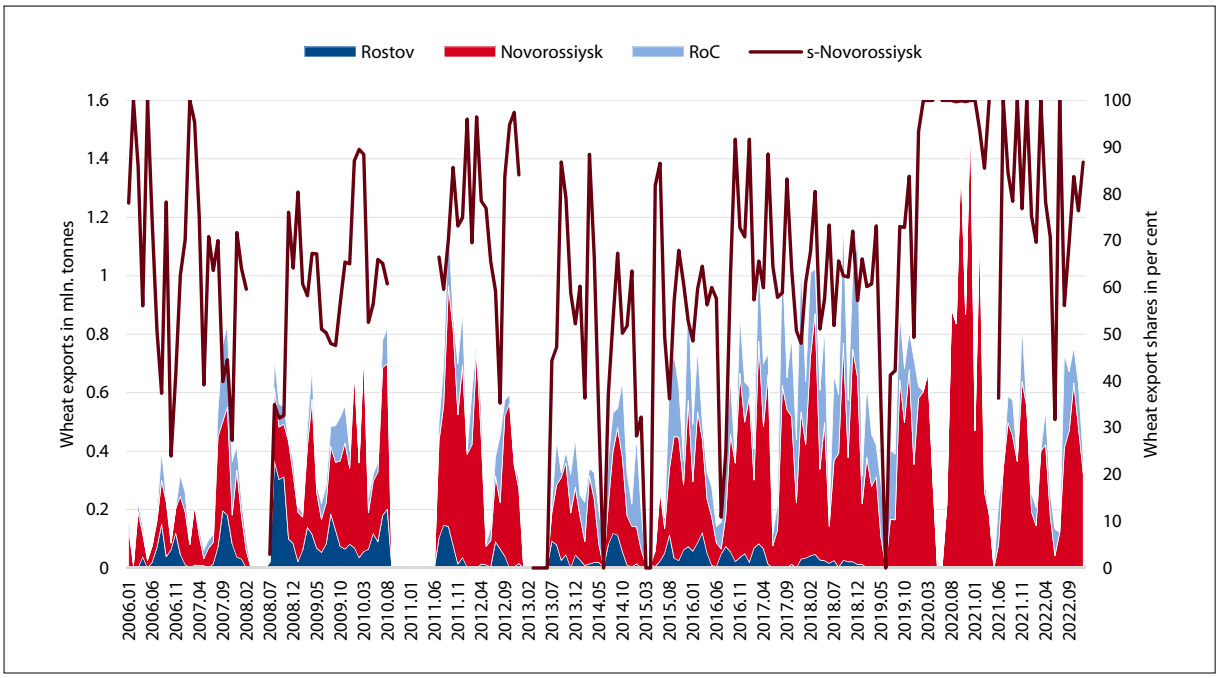
Figure 4: Wheat Exports and Market Shares of the Russian Ports Involved



Notes: The shaded areas represent the wheat exports from the ports. RoC represents the remaining Russian ports included in the customs statistics. The s-Novorossiysk line represents the port's share of Russia's total wheat exports.

Source: Author's calculations based on data from APK-Inform (2024).

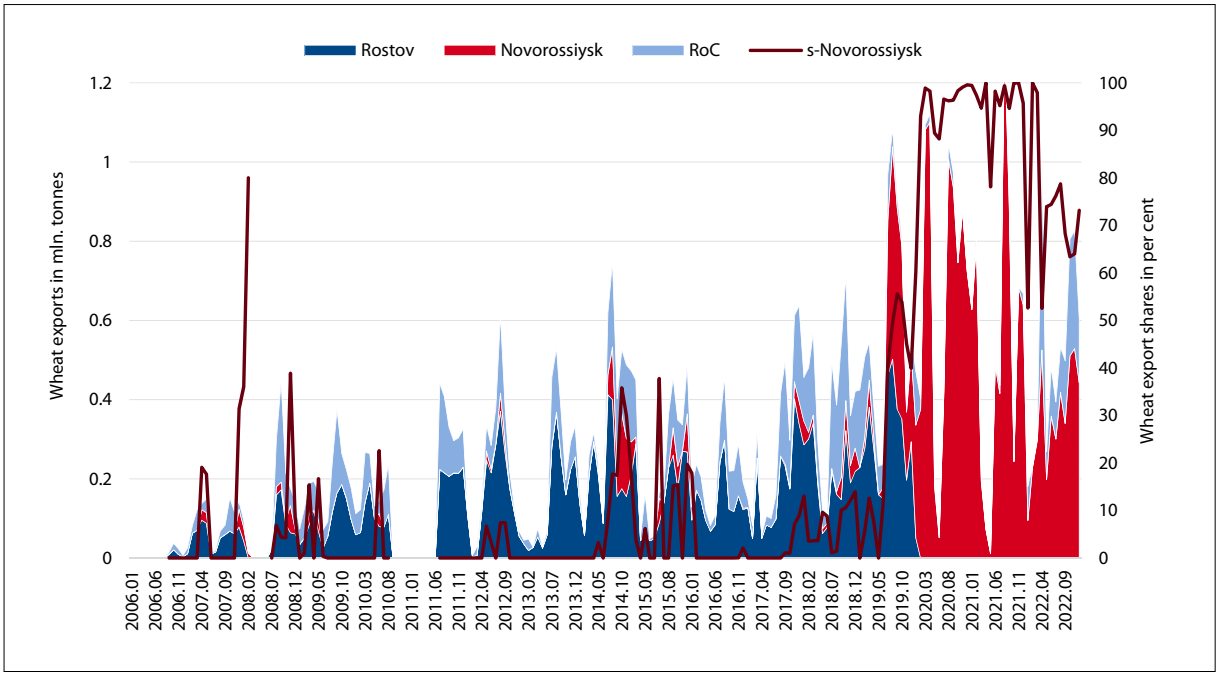
Figure 5: Wheat Exports to Egypt by Port



Note: The shaded areas represent wheat exports from the ports. RoC represents the remaining Russian ports included in the customs statistics. The line s-Novorossiysk represents the share of wheat exports from Novorossiysk in Russia's total wheat exports.

Source: Author's calculations based on data from APK-Inform (2024).

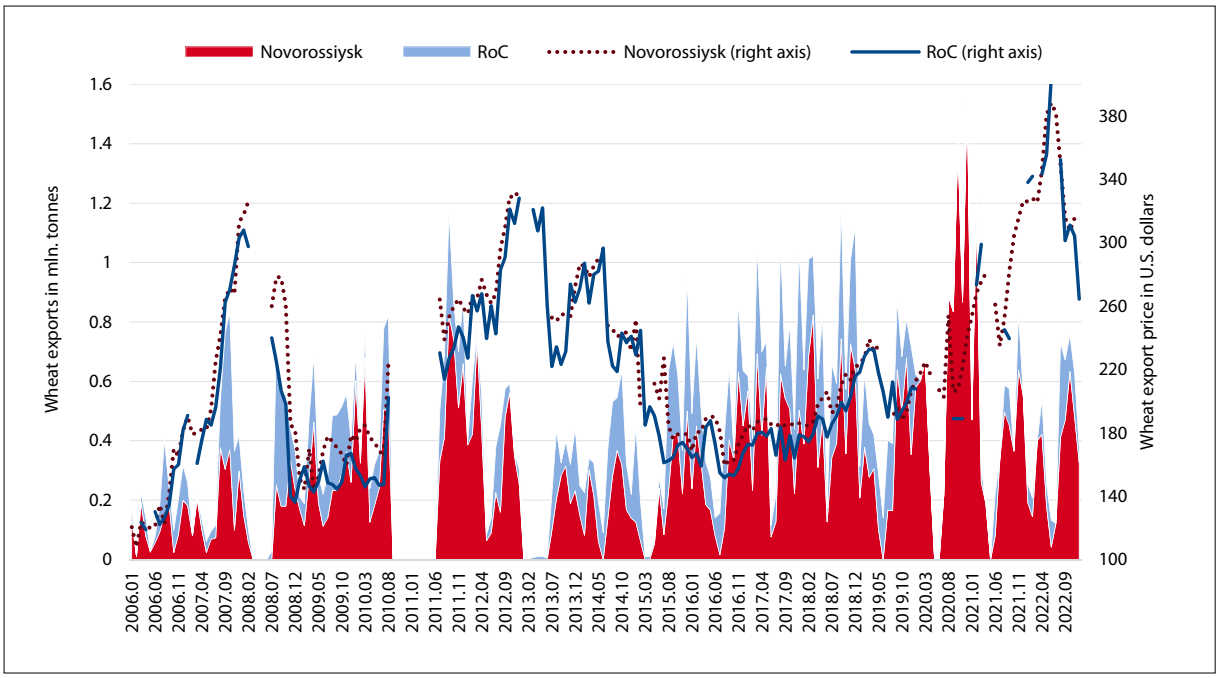
Figure 6: Wheat Exports to Turkey by Port



Note: The shaded areas represent the wheat exports from the ports. RoC represents the remaining Russian ports included in the customs statistics. The line s-Novorossiysk represents the share of wheat exports from Novorossiysk in Russia's total wheat exports.

Source: Author's calculations based on data from APK-Inform (2024).

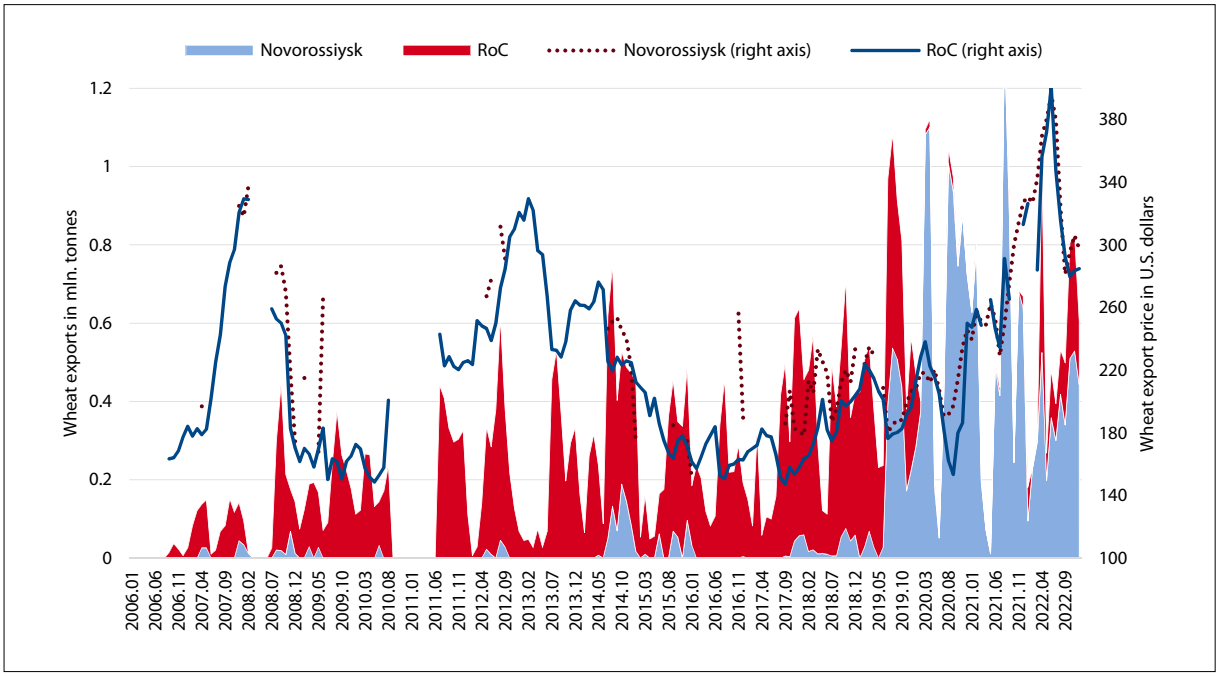
Figure 7: Price and Volume Fluctuations in the Egyptian Wheat Market



Note: The shaded areas represent the wheat exports from the ports. RoC represents the remaining Russian ports included in the customs statistics. The dotted line represents the wheat export price from Novorossiysk, while the solid line shows the wheat export price from the remaining Russian ports.

Source: Author's calculations based on data from APK-Inform (2024).

Figure 8: Price and Volume Fluctuations in the Turkish Wheat Market



Note: The shaded areas represent the wheat exports from the ports. RoC represents the remaining Russian ports included in the customs statistics. The dotted line represents the wheat export price from Novorossiysk, while the solid line shows the wheat export price from the remaining Russian ports.

Source: Author's calculations based on data from APK-Inform (2024).

ANALYSIS

Wheat Trade between Russia and Iran: a Discontinuous Trend

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Abstract

The increasing number of security, diplomatic, and political agreements, along with expanded military cooperation, more financial partnerships, and the growth of trade, all indicate a strengthening of relations between the Russian Federation and the Islamic Republic of Iran. This development has been particularly notable since their cooperation in the Syrian civil war in 2015 and especially following Russia's invasion of Ukraine on February 24, 2022. One dimension of this trend is the export of grain, particularly wheat, from Russia to Iran. However, this aspect of cooperation between the two countries remains volatile and does not show a steadily increasing trend. In this paper, the authors examine Iran's agricultural and food production, its import dependency, and the expanding trade and non-trade relations between Iran and Russia. The authors find that, despite the observed upward trend, wheat imports from Russia will continue to be discontinuous due to the self-sufficiency policies pursued by the Islamic Republic.

Neither East nor West

The Islamic Republic of Iran (IRI) was formed in 1979, during the Cold War, a period marked by heightened geopolitical tensions between the United States and its allies (the Western Bloc), on one side, and the Soviet Union and its allies (the Eastern Bloc), on the other. The

newly established Islamic regime in Iran adopted a foreign policy distinct from that of the preceding Pahlavi regime, which had been pro-Western. From the outset, the IRI pursued a "Neither East nor West" (Persian: "*na sharghi, na gharbi*") foreign policy, aligning itself with the Non-Aligned Movement (Keddie & Gasiorowski 1990). Due to the IRI's isolationist policies, the principle of self-sufficiency in food production, particularly in wheat, has been a core ideological tenet since its inception. This principle was promoted by the IRI's founder and first supreme leader, Ayatollah Khomeini, and later by his successor, second supreme leader Ali Khamenei (Babai 2020). Initially, self-sufficiency was pursued to ensure independence from the conflicting geopolitical blocs in the Cold War. After the Cold War ended, this policy persisted with the aid of several support schemes for farmers (Resistance Economy Think Tank 2023) and large investments in Iran's irrigation infrastructure (Nouri et al. 2023).

Nevertheless, agricultural and economic independence and self-sufficiency have seldom, if ever, been fully realized in Iran (Lob 2020). The ongoing pursuit of food self-sufficiency is challenged by two primary factors: population growth and diminishing disposable water resources for irrigation. First, the IRI has largely pursued policies promoting population growth and minimal family planning since 1979. As a result, Iran's population has grown from 35 million before the Islamic Revolution of 1979 to 83.2 million, with an additional 4 to 4.5 million citizens residing abroad as of 2023, per domestic sources (Entekhab 2024). The World Bank puts this estimate even higher, at 89,17 million in 2023. This rapid population growth has occasioned a dramatic increase in the quantity of domestic food supplies needed to achieve food security.

Second, agricultural production in general, and wheat production in particular, require sufficient water resources. However, given that Iran is predominantly characterized by an arid and semi-arid climate, variation in precipitation levels is high. Moreover, droughts, floods, and extreme temperatures due to climate change adversely impact both rainfed and irrigated agricultural systems, including those supporting wheat production (Zamanialaei et al. 2023). Additionally, groundwater resources have been depleted by the IRI's emphasis on food production and self-sufficiency (Shah 2023), which has seen a massive increase in the number of wells drilled for irrigation and the provision of energy subsidies to pump water needed for irrigation (Jaghdani & Kvartiuk 2021). Iran's self-sufficiency policy is also financially burdensome, as it consists of subsidies for both producers (production input subsidies for irrigation water or agricultural energy, guaranteed prices for producers, etc.) and consumers (cheap flour for bakeries, low fixed prices for bread, etc.), which has encouraged flour smuggling to neighbouring countries (Fardayeeghtesad 2024). State institutions have unrestricted control over wheat supply chains: they set guaranteed wheat prices, buy wheat from farmers, import wheat, distribute it to flour producers (both private and state-owned), allocate flour to bakeries, and fix the bread price (Hasheminezhad et al. 2020).

Wheat Production and Imports

Reviewing data on wheat production between 1979 and 2023, it can be observed that wheat production levels have ranged between a minimum of 5.6 million tons in 1981 and a maximum of 15.9 million tons in 2007 (see Figure 1 on p. 25). In years when self-sufficiency in wheat has not been achieved, Iran has imported the deficit from various countries around the world, with the volume of imports varying significantly. The data also show low-level exports of wheat from Iran, peaking at half a million tons in 2007 and 2010, years of high Iranian wheat production.

Iran's annual wheat imports peaked at 7.4 million tons in 2014, while there were no wheat imports in 2018 (Figure 1). This indicates a negative correlation between domestic wheat production and imports. Generally, Iran has direct access to the world market via its numerous ports in the Persian Gulf and the Gulf of Oman. Additionally, despite UN and Western sanctions on issues related to the Islamic Republic's nuclear activities, support for terrorism, and human rights violations, trade in humanitarian goods such as agri-food products is exempt from these restrictions. While Iran has not reported all its trade statistics to UN Comtrade since it was heavily sanctioned in 2011, a comparison of Iran's reported wheat imports and the aggregated mirror exports of wheat to Iran by other trading partners shows discrepancies in only a few years. This consistency between the two sources implies that humanitarian trade—not being subject to sanctions—is reported without issue.

The Dynamics of Iran–Russia Relations and the "Look to the East"

Although the Soviet Union was the first country to recognise the IRI (Grisé & Evans 2023), relations between the two states deteriorated in the 1980s due to the IRI's persecution of Marxist-Leninist political groups and the Soviet Union's military support for Iraq during the Iran–Iraq War of 1980–1988 (Grisé & Evans 2023; Keddie & Gasiorowski 1990). Relations between the two countries began to improve again in the final years of the Soviet Union and strengthened with the establishment of the new Russian Federation. While the Soviet collapse meant that the two countries lost their shared land border, Russia and Iran remained directly connected through the Caspian Sea (see Figure 2 on p. 25).

Although the founder of the IRI never abandoned his commitment to "Neither East nor West" foreign policy (Keddie & Gasiorowski 1990), his successor, Ali Khamenei, initiated a paradigm shift in the country's foreign policy from 2005. This shift was driven primarily by the IRI's nuclear ambitions and the country's ensuing complex negotiations with the International Atomic Energy Agency (IAEA). The new foreign policy, officially referred to as "Look to the East" (Persian: "*negah be shargh*"), aimed at strengthening commercial, economic, and technological relations with Eastern countries, particularly Russia, China, India, South Korea, and the former Soviet republics (Perletta 2024). Within this foreign policy framework, Iran attained observer status at the Shanghai Cooperation Organisation (SCO), which evolved into full membership in 2023 (Perletta 2024). The signing of a preferential trade agreement with the Eurasian Economic Union (EAEU) in 2019 (Adarov & Ghodsi 2021) may be perceived as another dimension of this foreign policy shift.

Cooperation between the IRI and Russia has intensified since Russia's intervention in the Syrian Civil War in 2015. The two countries have managed to compartmentalize their overlapping and divergent interests, focusing on areas of cooperation, such as saving the Bashar al-Assad regime in Syria and resisting U.S. sanctions (Grajewski 2020). The Russian invasion of Ukraine marked a turning point in military cooperation between the IRI and Russia, with Iran notably increasing its military support to Russia by providing kamikaze drones (Lob 2023; Mahmoudian 2023).

The growing cooperation between the two countries is not limited to military support. Records indicate that Russia initiated several dredging activities in the Volga River even before the Ukraine war (Jaghdani & Ketabchy 2023), potentially facilitating enhanced trade with Iran through the Caspian Sea. A surge in cooperation in other sectors, such as information security (Rajabi 2023), finance, and banking (TASS 2024b), has been observed since 2022.

However, the potential for deeper trade integration remains limited, as both Russia and Iran are significant producers and exporters of hydrocarbons and mineral commodities (Grisé & Evans 2023). Notably, Russia has ceased reporting its trade volume and value to UN Comtrade, while Iran continued to report these values through the end of 2022. Discrepancies exist between the two countries' reported trade values, with Russia typically reporting higher figures than Iran. Based on the nominal trade values reported by Russia to UN Comtrade for 2004–2021 and other Russian sources for 2022–2023 (see Figure 3 on p. 26), there has been a gradual increase in the size of non-military trade between Iran and Russia. The total volume of this trade in commodities and services reached US$4.9 billion in 2022 (TASS 2023a). According to an official statement by the Russian authorities, total trade was announced to be US$4 billion in 2023, with Russia exporting US$2.7 billion and Iran US$1.3 billion (TASS 2024a).

It is evident that the volume of this trade is relatively small compared to Russia's trade with the European Union (EU) prior to the invasion of Ukraine, or to Iran's trade with China. According to data provided by the Iranian government, grains dominated Iran's imports from Russia, while fruits and vegetables were the major products exported by Iran to Russia in 2021 and 2022. In addition to wheat, Iran is also an importer of Russian corn, sunflower oil, and barley (IntelliNews 2024). Despite the existence of a trade route through the Caspian Sea, the primary route for wheat trade is through the Black Sea, the Red Sea, and the Persian Gulf, due to limitations in both sides' transport infrastructure via the Caspian Sea (Heigermoser et al. 2022; IntelliNews 2024).

Although Russia began exporting cereals, particularly wheat, to the global market in 2000 (Jaghdani et al. 2023), Iran did not consider Russia a major partner until 2020 (see Figure 4 on p. 26), when bilateral relations strengthened. The Iranian government follows a diversification strategy for wheat imports to ensure supply in times of domestic harvest shortfall, a trend corroborated by UN Comtrade data since 2001. Nevertheless, wheat imports from Russia have increased in recent years. As a result, Russia has emerged as the leading supplier of wheat to Iran, with imports amounting to approximately 2 million tons in 2021 and 2022, or 35% of Iran's total wheat imports. Figure 4 presents the countries of origin for Iran's wheat imports from 2001 to 2022. The share of nations in the Western bloc—such as Australia, Austria, Bulgaria, Canada, Cyprus, Denmark, France, Germany, Italy, Ireland, Latvia, Lithuania, the Netherlands, Spain, Sweden, Switzerland, the UK, and the US—has declined over time. Intermediary countries such as the UAE, Turkey, Iraq, Uzbekistan, and Singapore are also observable in the trade data as part of the category "Others." According to the latest available statements from Iranian officials, total wheat imports in 2023 were less than 1 million tons; the countries that supplied this wheat have yet to be identified. It is anticipated that no wheat will be imported in 2024 (TRIDGE 2024), as sufficient precipitation has permitted Iran to attain self-sufficiency in wheat production after years of drought.

The Future of the Russian–Iranian Wheat Trade

Various analysts believe that the Russian–Iranian relationship may not remain as strong as it currently is (e.g., Katz 2024; Ramani 2024). While the authors of this analysis cannot support or refute this hypothesis, the

findings suggest that the wheat trade between Russia and Iran is inherently unstable, largely influenced by the size of wheat harvests in Iran. Despite the overall increase in cooperation between Russia and Iran, particularly since Russia's invasion of Ukraine in 2022, it appears that the IRI will continue to pursue its policy of wheat self-sufficiency as the weather permits.

The supreme leader of the IRI has institutionalized wheat self-sufficiency through several official "upstream documents" (Persian: "*asnad baladasti*") that guide key policies in the IRI, among them the "1404 Perspective Document," "Revolution 2nd Step," and "General Policies of the Resistance Economy" (Babai 2020). Lower-ranking officials are not allowed to deviate from these documents—and indeed, since 2021, even candidates in the regime-controlled presidential elections must adhere to these upstream documents as a condition of their candidacy (ISNA 2024).

Given that many scholars (e.g. Milani 2015; Golkar 2012; Heydemann and Leenders 2013)classify the IRI as an authoritarian regime, the speeches of leader Ali Khamenei as an autocrat serve to illuminate the IRI's policy priorities. Analysis demonstrates that self-sufficiency is a recurring theme in his public speeches (Bazoobandi 2023). In a 2019 speech before state officials, Ali Khamenei (2019) opined:[1]

> …A new idea, a fresh thought unfortunately entered our decision-making systems at a certain point, which distanced us from self-sufficiency, and that idea was "economic efficiency." They [officials in the government] said that producing wheat and achieving wheat self-sufficiency isn't economically viable; economic efficiency lies in importing wheat. Well, yes, it may be true that at times, economic efficiency points to this option. But what will you do when they [foreign powers] prevent you from acquiring wheat? When they block imports and refuse to sell you wheat? What would you do then? What sane government in the world would make such a decision? They [officials in the government] said, for example, planting saffron instead and importing wheat is better because saffron fetches a higher price globally; that's where economic efficiency lies. …

This speech, along with others, provides a clear indication that dependency on wheat imports from Russia is not part of the IRI's agenda. Ali Khamenei explicitly rejects market mechanisms for wheat supply and instead promotes his "Resistance Economy" doctrine. The Resistance Economy doctrine enables the economy to sustain the power of the state, maintaining control over the extractive political institutions led by the Khamenei. In other words, it allows the economy to survive despite hardships and sanctions. Consequently, it is expected that Russia will retain its position as the top wheat exporter to Iran but will only be called upon to export wheat when precipitation levels are insufficient to meet self-sufficiency objectives.

In one of the upstream documents, a 2014 text entitled "General Policies of Resistance Economy," diversification of export partners for food imports is advised when such imports are unavoidable (Article 6). This document does not, however, prioritize any specific partner. The authors of this report could not find any official documents or decrees suggesting that Iranian officials were obliged to buy wheat from Russia. This does not, however, diminish IRI officials' strong inclination to buy wheat from Russia when necessary. The authors interpret the increase in wheat imports from Russia, coupled with the decrease in imports from Western countries, as a result of evolving geopolitical dynamics and potentially indicative of bloc formation in global wheat trade. Nevertheless, the priority of the Iranian regime and its supreme leader remains achieving wheat self-sufficiency, regardless of the costs to the national budget or environment.

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Please see overleaf for suggestions for further reading.

1 Text in square brackets added by the authors to clarify the content of the speech.

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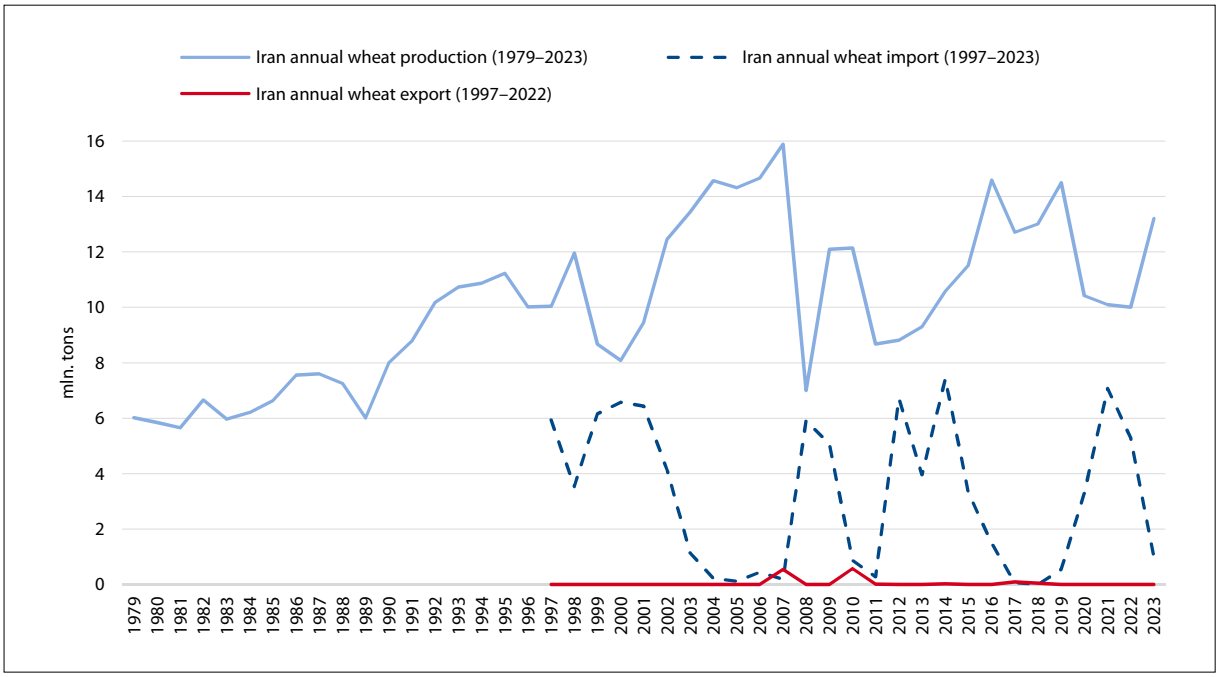
Figure 1: Iran's Annual Wheat Production, Imports, and Exports, mln. tons, 1979–2023

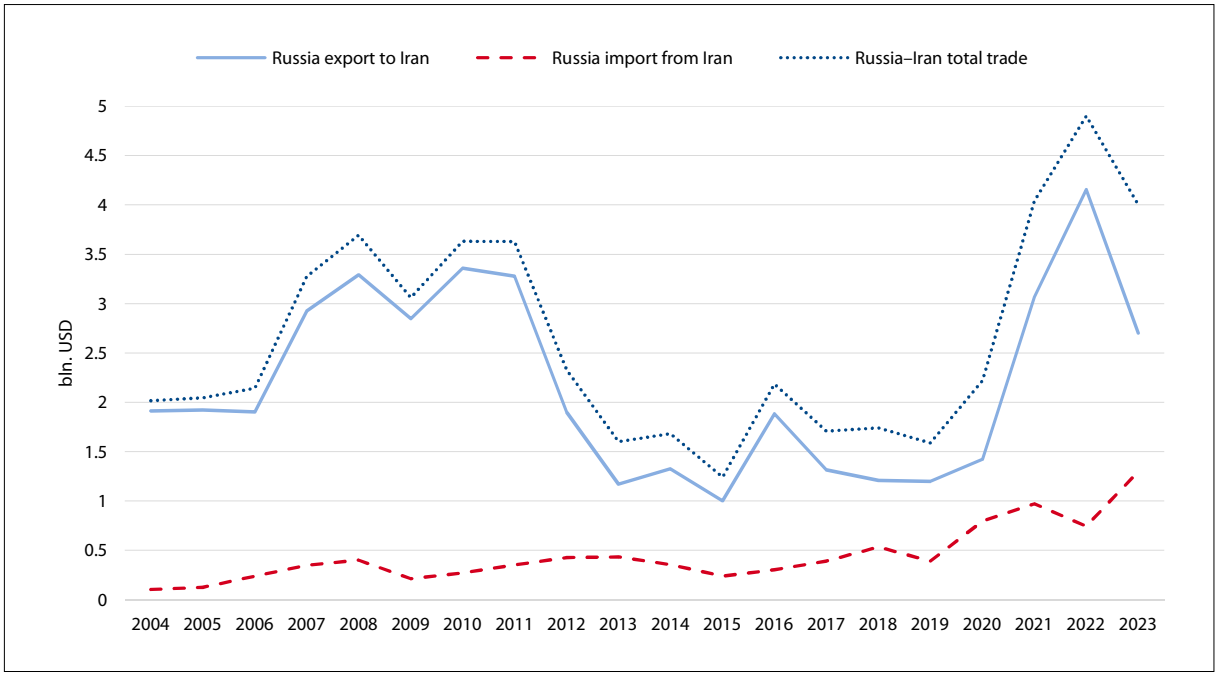


Source: FAO, UN COMTRADE data, TRIDGE (2024), IPAD

Figure 2: Russia–Iran Regional Map

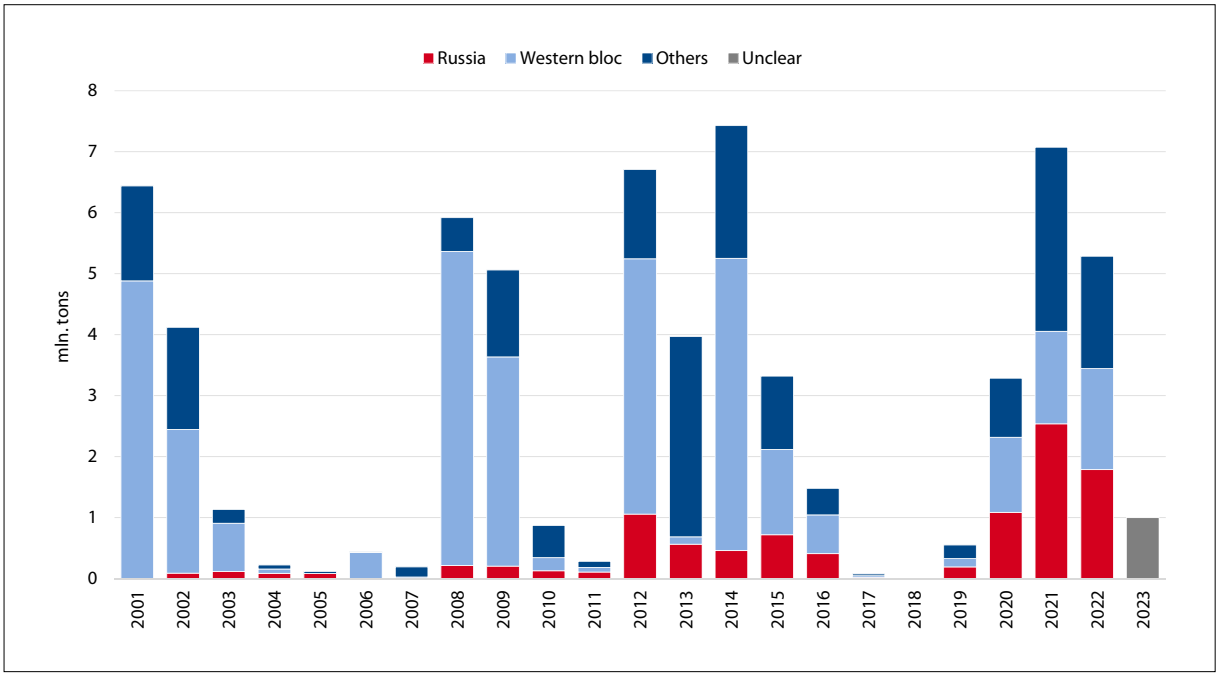
Map created in QGIS with data from OpenStreetMap by the Research Centre at the University of Bremen.

Figure 3: Nominal Value of Annual Trade between Iran and Russia, 2004–2023



Source: Trademap, TASS 2023a, TASS 2023b, and TASS 2024a.

Figure 4: The Share of Russia and Other Trading Partners in Iran's Total Annual Wheat Imports, 2001–2023



Source: Trade Map, UN Comtrade, TRIDGE (2024)

ABOUT THE RUSSIAN ANALYTICAL DIGEST

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